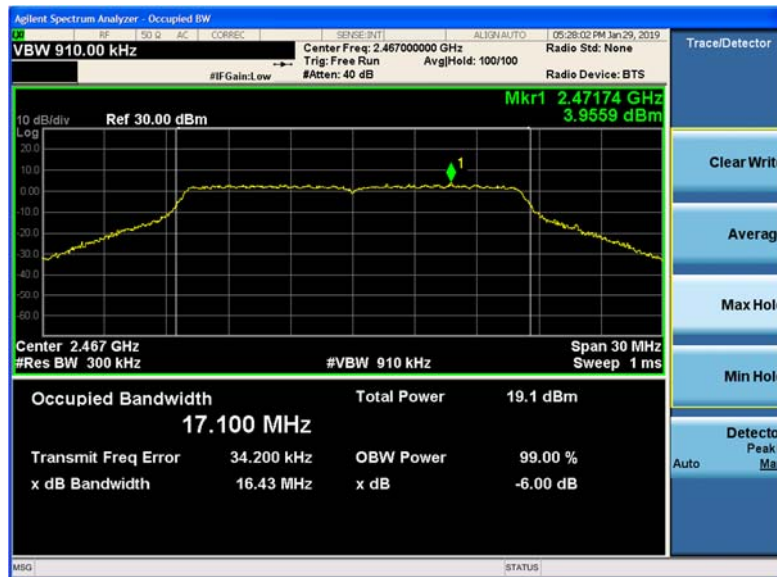
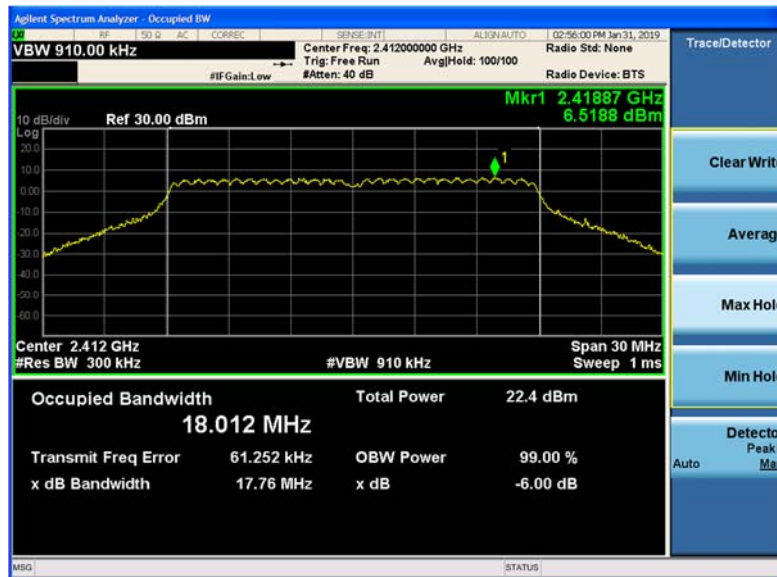




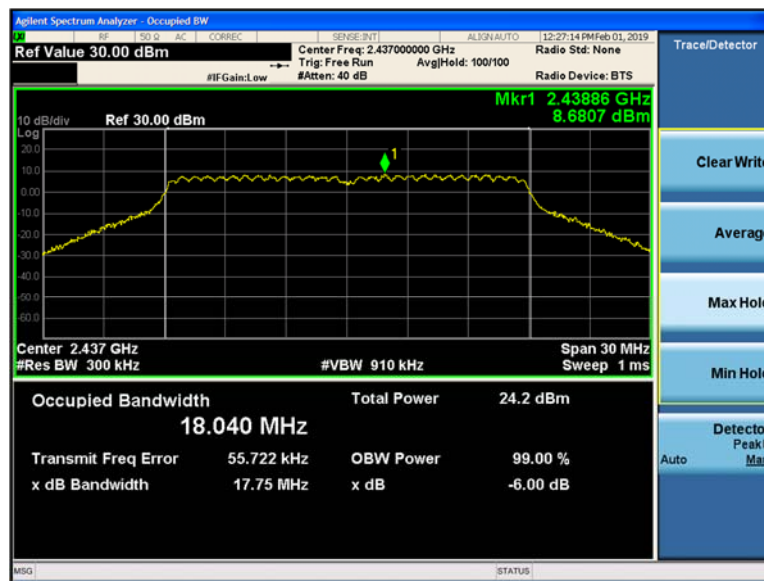
Plot 9-77 Chain B 99% Bandwidth 802.11g - Ch.12 (2467 MHz)



Plot 9-78 Chain B 99% Bandwidth 802.11g - Ch.13 (2472 MHz)



Plot 9-79 Chain B 99% Bandwidth 802.11n20 - Ch.1 (2412 MHz)



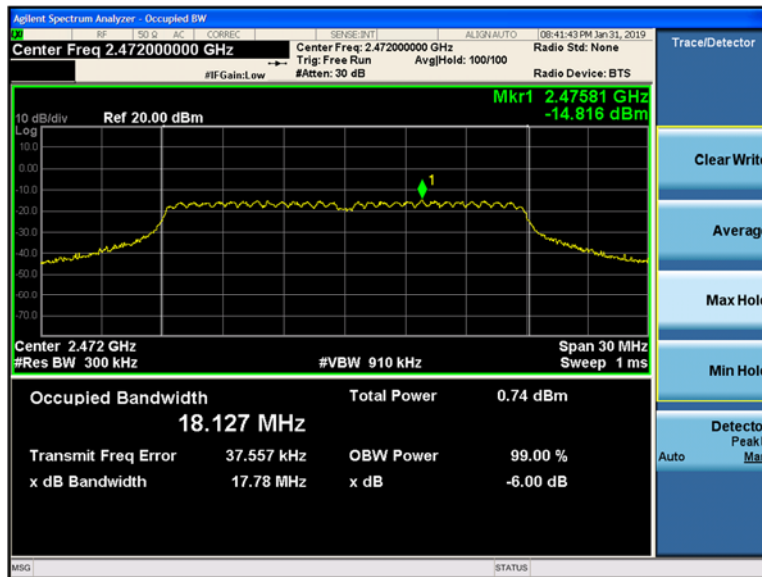
Plot 9-80 Chain B 99% Bandwidth 802.11n20 - Ch.6 (2437 MHz)



Plot 9-81 Chain B 99% Bandwidth 802.11n20 - Ch.11 (2462 MHz)



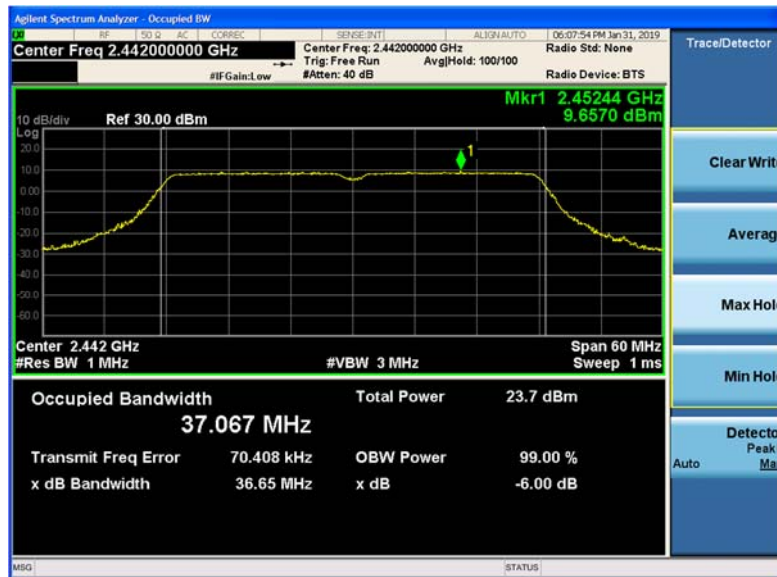
Plot 9-82 Chain B 99% Bandwidth 802.11n20 - Ch.12 (2467 MHz)



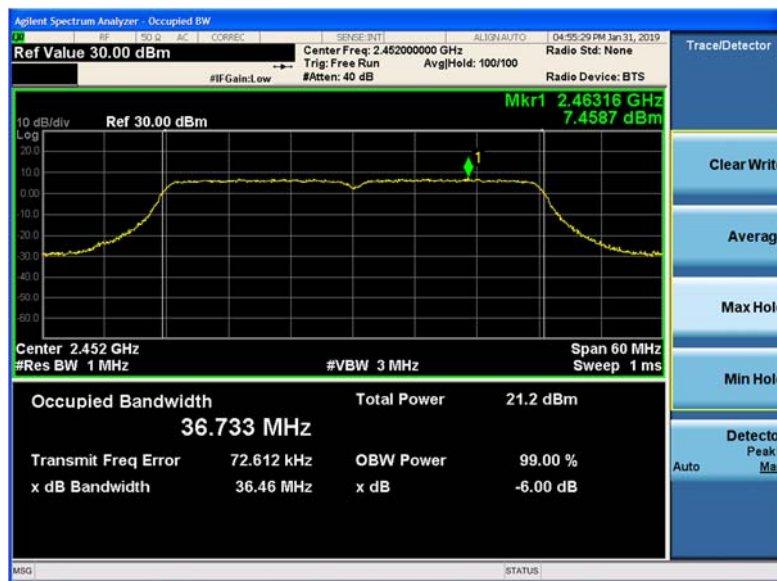
Plot 9-83 Chain B 99% Bandwidth 802.11n20 - Ch.13 (2472 MHz)



Plot 9-84 Chain B 99% Bandwidth 802.11n40 - Ch.3 (2422 MHz)



Plot 9-85 Chain B 99% Bandwidth 802.11n40 - Ch.7 (2442 MHz)



Plot 9-86 Chain A 99% Bandwidth 802.11n40 - Ch.9 (2452 MHz)



Plot 9-87 Chain B 99% Bandwidth 802.11n40 - Ch.10 (2457 MHz)



Plot 9-88 Chain A 99% Bandwidth 802.11n40 - Ch.11 (2462 MHz)

## 9.4 Output Power

### 9.4.1 Test Requirement:

FCC CFR 47 Rule Part 15.247 (b)(3)

ISED RSS-247 [5.4]

### 9.4.2 Test Method:

Measurements were performed according to the procedure defined in KDB 558074- Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 V05 and ANSI C63.10: 2013.

#### **Power Meter Settings:**

##### ***Peak Power:***

The maximum peak conducted output power was measured using a broadband peak RF power meter. The power meter had a video bandwidth that is greater than or equal to the DTS bandwidth and utilized a fast-responding diode detector.

### 9.4.3 Limits:

15.247: The maximum permissible peak output power is 30 dBm (1 W)

RSS-247: The maximum peak conducted output power shall not exceed 30dBm (1 W) and the maximum radiated output power shall not exceed 36dBm (4 W) EIRP.



#### 9.4.4 Test Results:

| MIMO Conducted Peak Output Power |            |                                     |                                     |                             |                       |             |        |
|----------------------------------|------------|-------------------------------------|-------------------------------------|-----------------------------|-----------------------|-------------|--------|
| 802.11 mode                      | Freq (MHz) | Path A Conducted Output power (dBm) | Path B Conducted Output Power (dBm) | Total Peak Cond Power (dBm) | Conducted Limit (dBm) | Margin (dB) | Result |
| b                                | 2412       | 18.26                               | 17.99                               | 21.14                       | 29.77                 | -8.63       | Pass   |
| b                                | 2437       | 19.11                               | 18.76                               | 21.95                       | 29.77                 | -7.82       | Pass   |
| b                                | 2462       | 19.26                               | 18.78                               | 22.04                       | 29.77                 | -7.73       | Pass   |
| b                                | 2467       | 17.10                               | 16.55                               | 19.84                       | 29.77                 | -9.92       | Pass   |
| b                                | 2472       | 12.42                               | 11.94                               | 15.19                       | 29.77                 | -14.57      | Pass   |
| g                                | 2412       | 19.30                               | 19.28                               | 22.30                       | 29.77                 | -7.47       | Pass   |
| g                                | 2437       | 21.03                               | 21.19                               | 24.12                       | 29.77                 | -5.65       | Pass   |
| g                                | 2462       | 18.43                               | 18.19                               | 21.32                       | 29.77                 | -8.44       | Pass   |
| g                                | 2467       | 16.34                               | 16.33                               | 19.35                       | 29.77                 | -10.42      | Pass   |
| g                                | 2472       | -2.97                               | -3.57                               | -0.33                       | 29.77                 | -30.10      | Pass   |
| n20                              | 2412       | 19.07                               | 19.11                               | 22.10                       | 29.77                 | -7.67       | Pass   |
| n20                              | 2437       | 20.85                               | 20.86                               | 23.86                       | 29.77                 | -5.90       | Pass   |
| n20                              | 2462       | 18.03                               | 18.00                               | 21.02                       | 29.77                 | -8.74       | Pass   |
| n20                              | 2467       | 16.67                               | 16.25                               | 19.48                       | 29.77                 | -10.29      | Pass   |
| n20                              | 2472       | -2.90                               | -3.56                               | -0.21                       | 29.77                 | -29.98      | Pass   |
| n40                              | 2422       | 17.42                               | 18.03                               | 20.75                       | 29.77                 | -9.02       | Pass   |
| n40                              | 2442       | 20.56                               | 20.77                               | 23.68                       | 29.77                 | -6.09       | Pass   |
| n40                              | 2452       | 17.73                               | 18.17                               | 20.97                       | 29.77                 | -8.80       | Pass   |
| n40                              | 2457       | 14.67                               | 14.03                               | 17.37                       | 29.77                 | -12.40      | Pass   |
| n40                              | 2462       | 7.94                                | 7.46                                | 10.72                       | 29.77                 | -19.05      | Pass   |



| MIMO Conducted Peak EIRP |                 |                                  |                    |            |                  |             |        |
|--------------------------|-----------------|----------------------------------|--------------------|------------|------------------|-------------|--------|
| 802.11 mode              | Frequency (MHz) | Total Peak Conducted Power (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Margin (dB) | Result |
| b                        | 2412            | 21.14                            | 6.23               | 27.37      | 36.00            | -8.63       | Pass   |
| b                        | 2437            | 21.95                            | 6.23               | 28.18      | 36.00            | -7.82       | Pass   |
| b                        | 2462            | 22.04                            | 6.23               | 28.27      | 36.00            | -7.73       | Pass   |
| b                        | 2467            | 19.84                            | 6.23               | 26.08      | 36.00            | -9.92       | Pass   |
| b                        | 2472            | 15.19                            | 6.23               | 21.43      | 36.00            | -14.57      | Pass   |
| g                        | 2412            | 22.30                            | 6.23               | 28.53      | 36.00            | -7.47       | Pass   |
| g                        | 2437            | 24.12                            | 6.23               | 30.35      | 36.00            | -5.65       | Pass   |
| g                        | 2462            | 21.32                            | 6.23               | 27.56      | 36.00            | -8.44       | Pass   |
| g                        | 2467            | 19.35                            | 6.23               | 25.58      | 36.00            | -10.42      | Pass   |
| g                        | 2472            | -0.33                            | 6.23               | 5.90       | 36.00            | -30.10      | Pass   |
| n20                      | 2412            | 22.10                            | 6.23               | 28.33      | 36.00            | -7.67       | Pass   |
| n20                      | 2437            | 23.86                            | 6.23               | 30.10      | 36.00            | -5.90       | Pass   |
| n20                      | 2462            | 21.02                            | 6.23               | 27.26      | 36.00            | -8.74       | Pass   |
| n20                      | 2467            | 19.48                            | 6.23               | 25.71      | 36.00            | -10.29      | Pass   |
| n20                      | 2472            | -0.21                            | 6.23               | 6.02       | 36.00            | -29.98      | Pass   |
| n40                      | 2422            | 20.75                            | 6.23               | 26.98      | 36.00            | -9.02       | Pass   |
| n40                      | 2442            | 23.68                            | 6.23               | 29.91      | 36.00            | -6.09       | Pass   |
| n40                      | 2452            | 20.97                            | 6.23               | 27.20      | 36.00            | -8.80       | Pass   |
| n40                      | 2457            | 17.37                            | 6.23               | 23.60      | 36.00            | -12.40      | Pass   |
| n40                      | 2462            | 10.72                            | 6.23               | 16.95      | 36.00            | -19.05      | Pass   |

## 9.5 Power Spectral Density

### 9.5.1 Test Requirement:

FCC CFR 47 Rule Part 15.247 (e)  
ISED RSS-247 Issue 1 [5.2]

### 9.5.2 Test Method:

Measurements were performed according to the procedure defined in KDB 558074- Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 V05 and ANSI C63.10: 2013.

#### **Spectrum Analyzer settings:**

Set analyzer center frequency to DTS channel center frequency.

Span to 1.5 times the DTS bandwidth

RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$

VBW  $\geq 3$  RBW

Detector = Peak

Sweep time = auto couple

Trace mode = max hold

Use the peak marker function to determine the maximum amplitude level within the RBW

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 9.5.3 Limits:

The maximum permissible power density is 8 dBm/3kHz, however if the antenna gain is >6 dBi, the limit is reduced by the total Directional Antenna Gain –6 dBi.

In this case:

Correlated Directional gain = 9.20 dBi.

Uncorrelated gain = 6.23 dBi.

#### 9.5.4 Test Results:

| 802.11 mode | Frequency (MHz) | Path A Power Spectral Density (dBm/3kHz) | Path B Power Spectral Density (dBm/3kHz) | Total Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Pass/Fail |
|-------------|-----------------|------------------------------------------|------------------------------------------|-----------------------------------------|------------------|-----------|
| b           | 2412            | -7.02                                    | -6.92                                    | -3.96                                   | 7.77             | Pass      |
| b           | 2437            | -5.98                                    | -6.17                                    | -3.07                                   | 7.77             | Pass      |
| b           | 2462            | -5.88                                    | -6.11                                    | -2.98                                   | 7.77             | Pass      |
| b           | 2467            | -9.74                                    | -10.01                                   | -6.86                                   | 7.77             | Pass      |
| b           | 2472            | 0.33                                     | 0.30                                     | 3.33                                    | 7.77             | Pass      |
| g           | 2412            | -10.79                                   | -10.76                                   | -7.77                                   | 4.80             | Pass      |
| g           | 2437            | -8.50                                    | -8.37                                    | -5.42                                   | 4.80             | Pass      |
| g           | 2462            | -11.10                                   | -11.80                                   | -8.43                                   | 4.80             | Pass      |
| g           | 2467            | -13.52                                   | -13.39                                   | -10.44                                  | 4.80             | Pass      |
| g           | 2472            | -17.68                                   | -17.79                                   | -14.73                                  | 4.80             | Pass      |
| n           | 2412            | -11.16                                   | -10.93                                   | -8.03                                   | 4.80             | Pass      |
| n           | 2437            | -8.40                                    | -8.65                                    | -5.51                                   | 4.80             | Pass      |
| n           | 2462            | -11.82                                   | -11.84                                   | -8.82                                   | 4.80             | Pass      |
| n           | 2467            | -13.59                                   | -13.65                                   | -10.61                                  | 4.80             | Pass      |
| n           | 2472            | -17.73                                   | -17.68                                   | -14.70                                  | 4.80             | Pass      |
| n           | 2422            | -1.46                                    | -1.66                                    | 1.45                                    | 4.80             | Pass      |
| n           | 2442            | 1.62                                     | 1.20                                     | 4.43                                    | 4.80             | Pass      |
| n           | 2452            | -1.24                                    | -1.74                                    | 1.53                                    | 4.80             | Pass      |
| n           | 2457            | -5.77                                    | -5.79                                    | -2.77                                   | 4.80             | Pass      |
| n           | 2462            | -13.02                                   | -13.01                                   | -10.01                                  | 4.80             | Pass      |

### 9.5.5 Test Data:



Plot 9-89 Chain A Peak Power Spectral Density 802.11b - Ch.1 (2412 MHz)



Plot 9-90 Chain A Peak Power Spectral Density 802.11b - Ch.6 (2437 MHz)



Plot 9-91 Chain A Peak Power Spectral Density 802.11b - Ch.11 (2462 MHz)



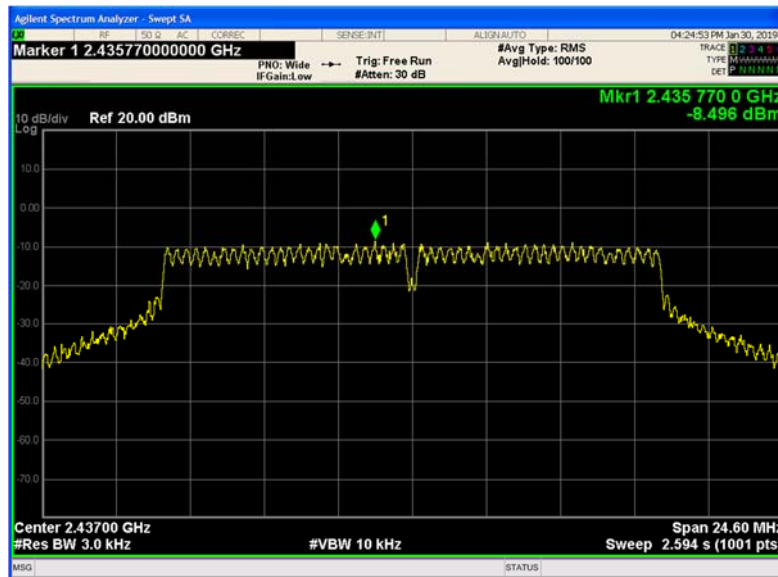
Plot 9-92 Chain A Peak Power Spectral Density 802.11b - Ch.12 (2467 MHz)



Plot 9-93 Chain A Peak Power Spectral Density 802.11b - Ch.13 (2472 MHz)



Plot 9-94 Chain A Peak Power Spectral Density 802.11g - Ch.1 (2412 MHz)



Plot 9-95 Chain A Peak Power Spectral Density 802.11g - Ch.6 (2437 MHz)



Plot 9-96 Chain A Peak Power Spectral Density 802.11g - Ch.11 (2462 MHz)

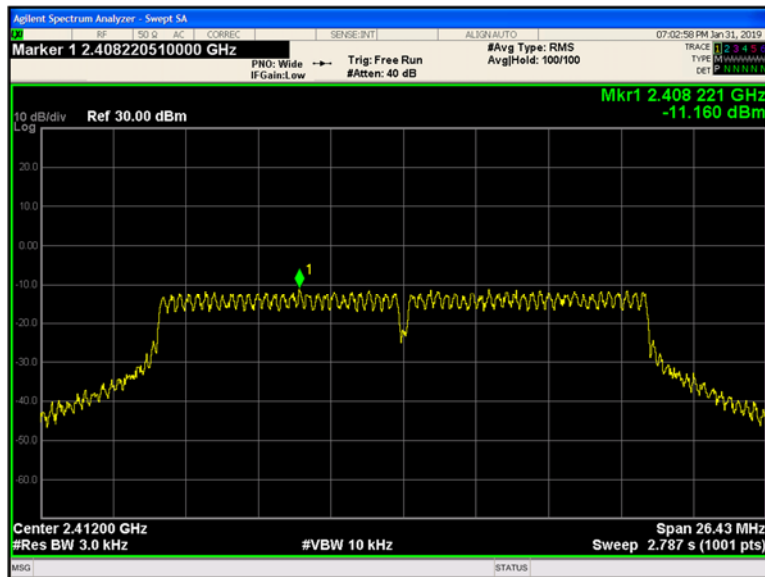




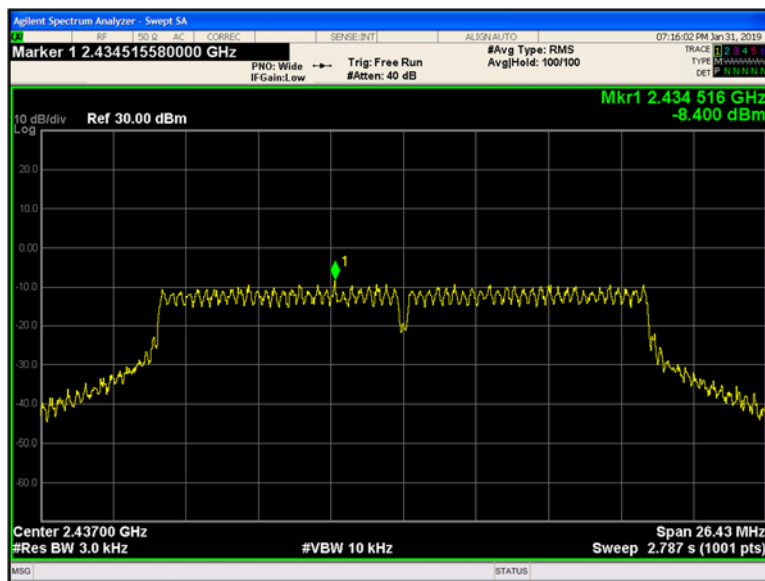
Plot 9-97 Chain A Peak Power Spectral Density 802.11g - Ch.12 (2467 MHz)



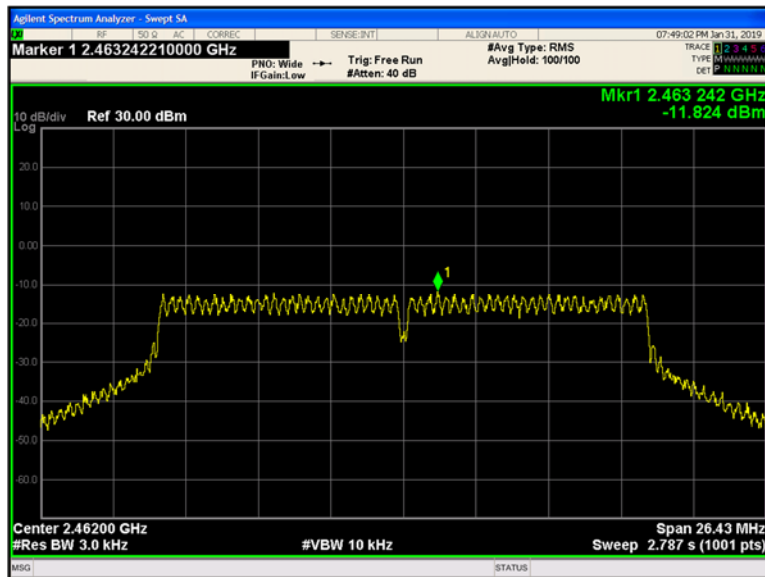
Plot 9-98 Chain A Peak Power Spectral Density 802.11g - Ch.13 (2472 MHz)



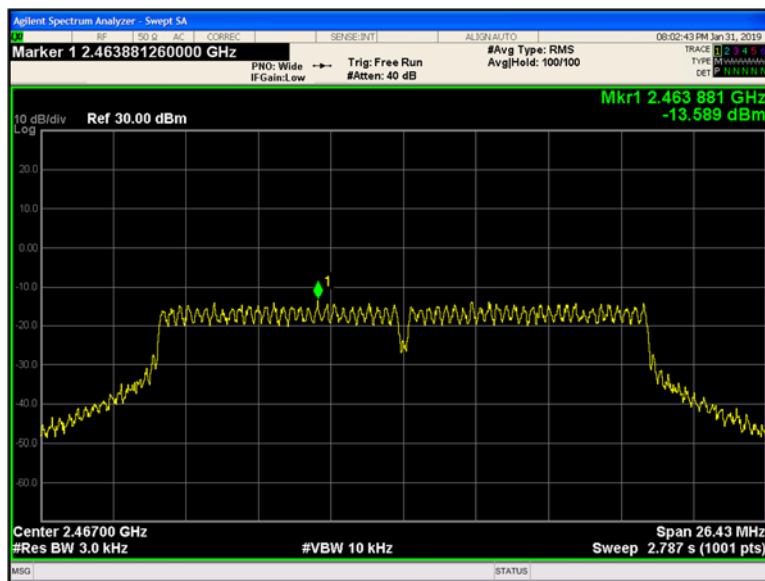
Plot 9-99 Chain A Peak Power Spectral Density 802.11n - Ch.1 (2412 MHz)



Plot 9-100 Chain A Peak Power Spectral Density 802.11n - Ch.6 (2437 MHz)

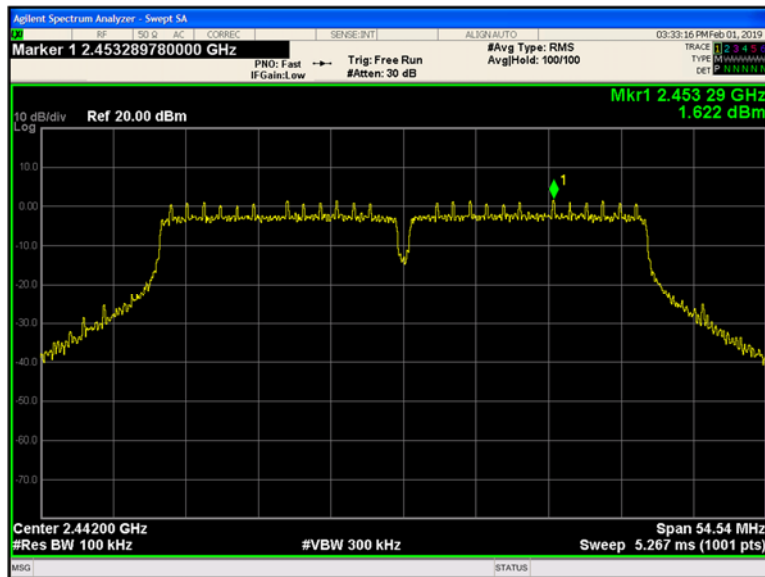


Plot 9-101 Chain A Peak Power Spectral Density 802.11n - Ch.11 (2462 MHz)

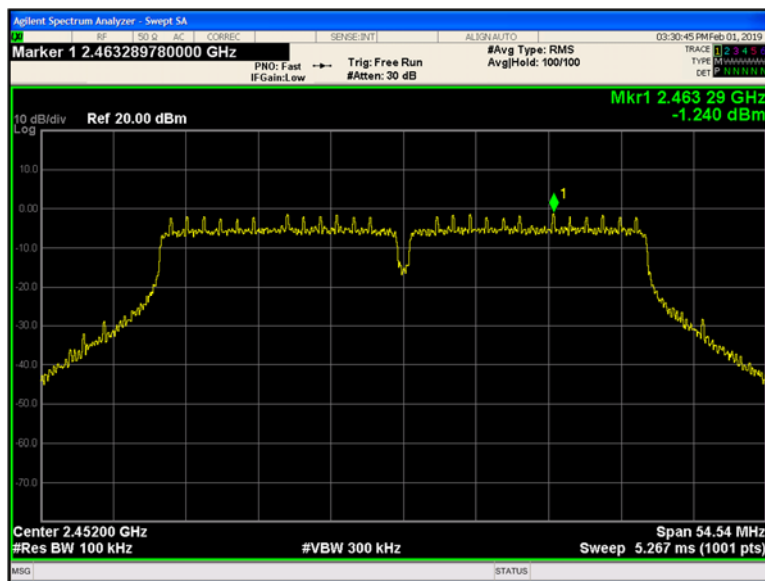


Plot 9-102 Chain A Peak Power Spectral Density 802.11n - Ch.12 (2467 MHz)

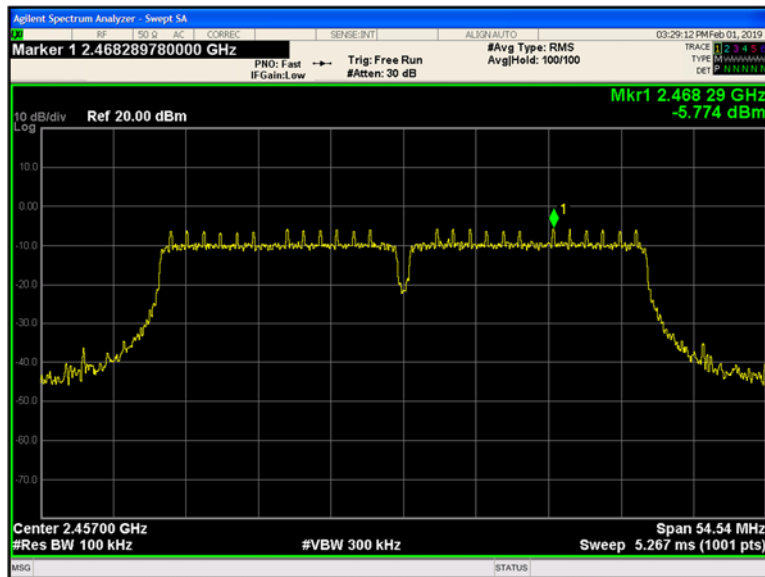




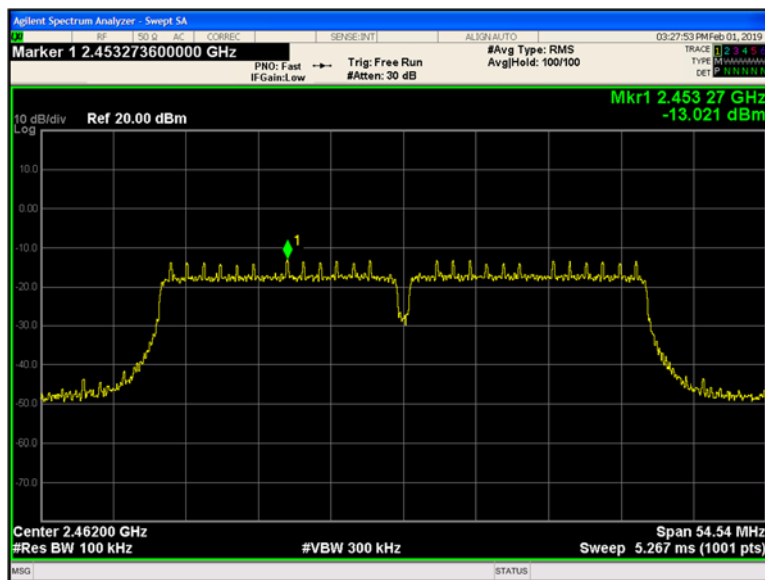
Plot 9-105 Chain A Peak Power Spectral Density 802.11n40 - Ch.7 (2442 MHz)



Plot 9-106 Chain A Peak Power Spectral Density 802.11n40 - Ch.9 (2452 MHz)



Plot 9-107 Chain A Peak Power Spectral Density 802.11n40 - Ch.10 (2457 MHz)



Plot 9-108 Chain A Peak Power Spectral Density 802.11n40 - Ch.11 (2462 MHz)



Plot 9-109 Chain B Peak Power Spectral Density 802.11b - Ch.1 (2412 MHz)



Plot 9-110 Chain B Peak Power Spectral Density 802.11b - Ch.6 (2437 MHz)



Plot 9-111 Chain B Peak Power Spectral Density 802.11b - Ch.11 (2462 MHz)



Plot 9-112 Chain B Peak Power Spectral Density 802.11b - Ch.12 (2467 MHz)





Plot 9-113 Chain B Peak Power Spectral Density 802.11b - Ch.13 (2472 MHz)



Plot 9-114 Chain B Peak Power Spectral Density 802.11g - Ch.1 (2412 MHz)



Plot 9-115 Chain B Peak Power Spectral Density 802.11g - Ch.6 (2437 MHz)



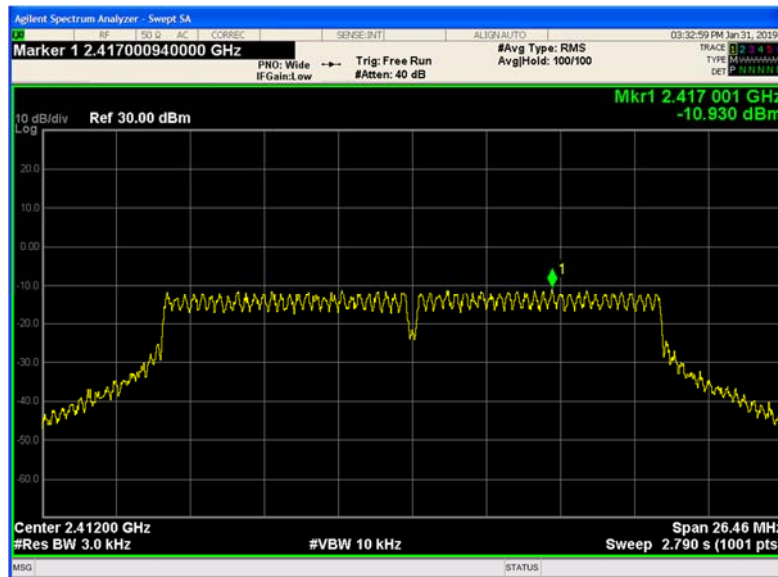
Plot 9-116 Chain B Peak Power Spectral Density 802.11g - Ch.11 (2462 MHz)



Plot 9-117 Chain B Peak Power Spectral Density 802.11g - Ch.12 (2467 MHz)



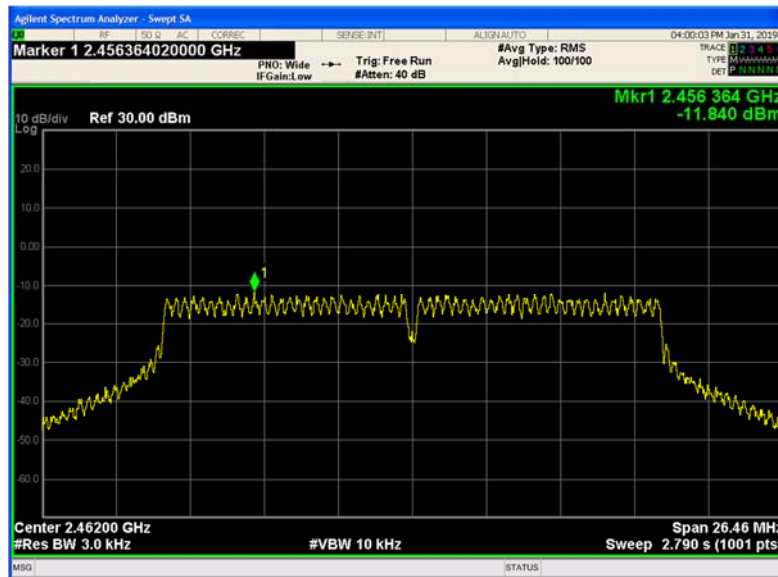
Plot 9-118 Chain B Peak Power Spectral Density 802.11g - Ch.13 (2472 MHz)



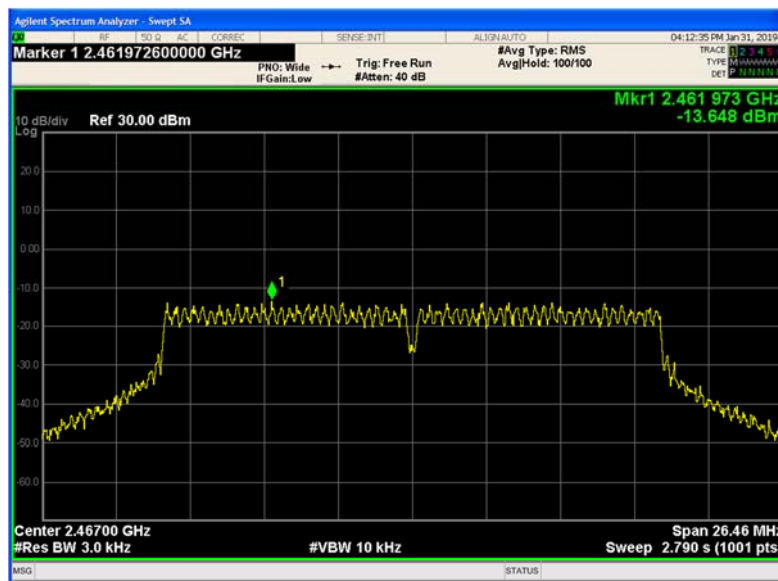
Plot 9-119 Chain B Peak Power Spectral Density 802.11n - Ch.1 (2412 MHz)



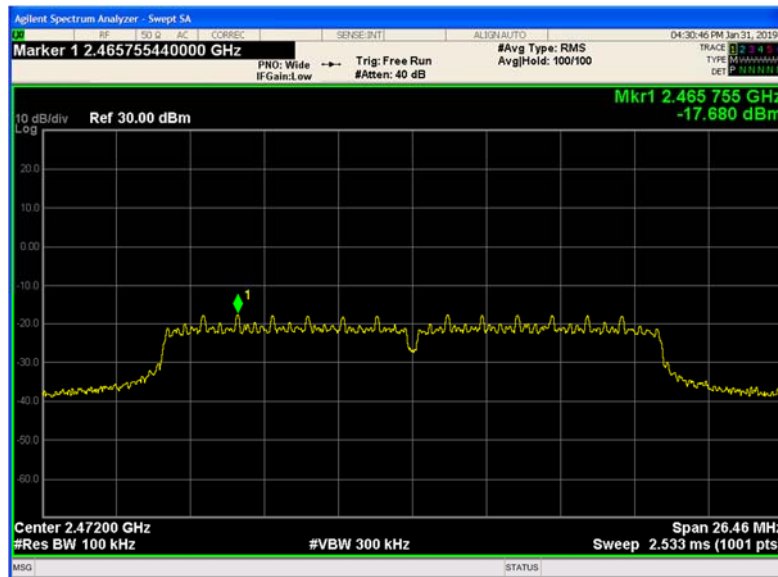
Plot 9-120 Chain B Peak Power Spectral Density 802.11n - Ch.6 (2437 MHz)



Plot 9-121 Chain B Peak Power Spectral Density 802.11n - Ch.11 (2462 MHz)



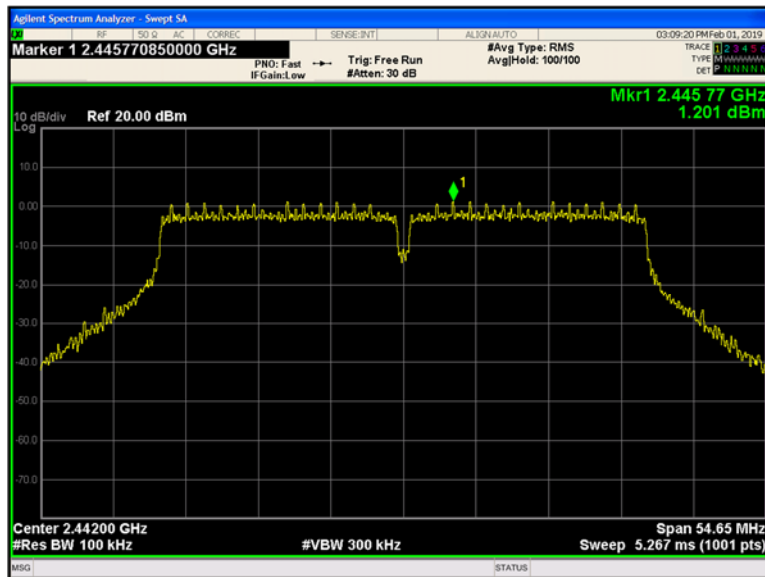
Plot 9-122 Chain B Peak Power Spectral Density 802.11n - Ch.12 (2467 MHz)



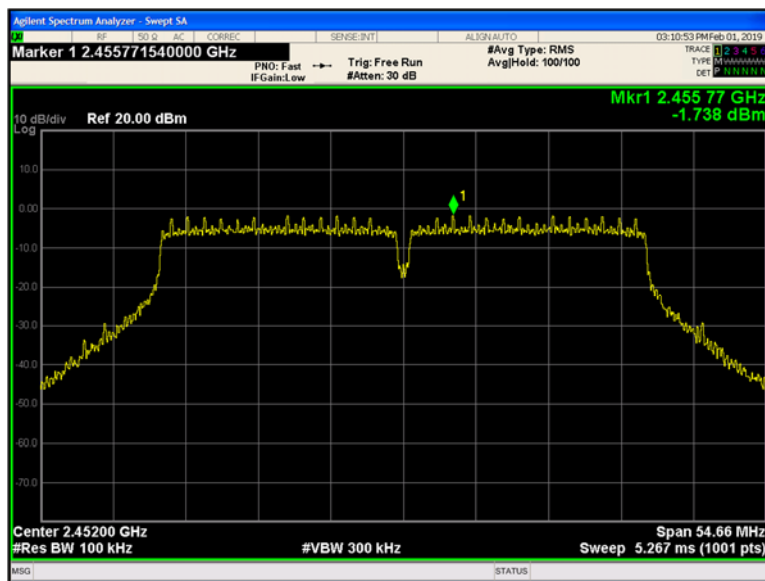
Plot 9-123 Chain B Peak Power Spectral Density 802.11n - Ch.13 (2472 MHz)



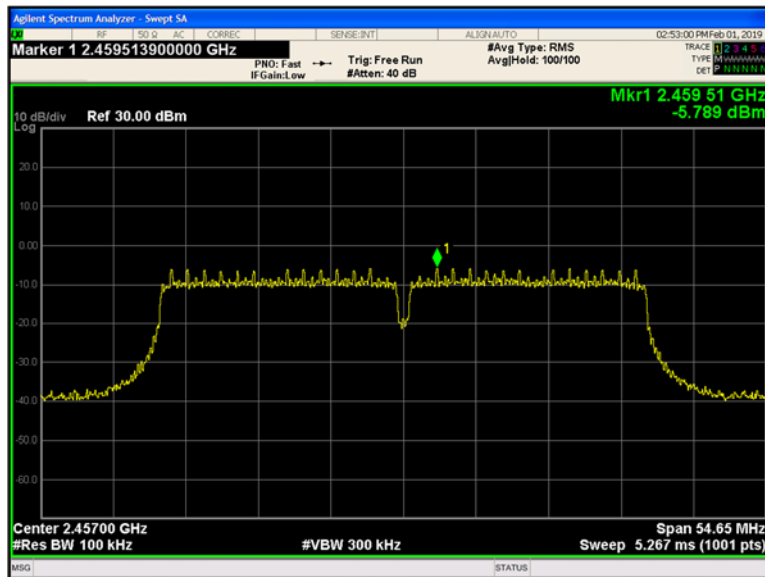
Plot 9-124 Chain B Peak Power Spectral Density 802.11n40 - Ch.3 (2422 MHz)



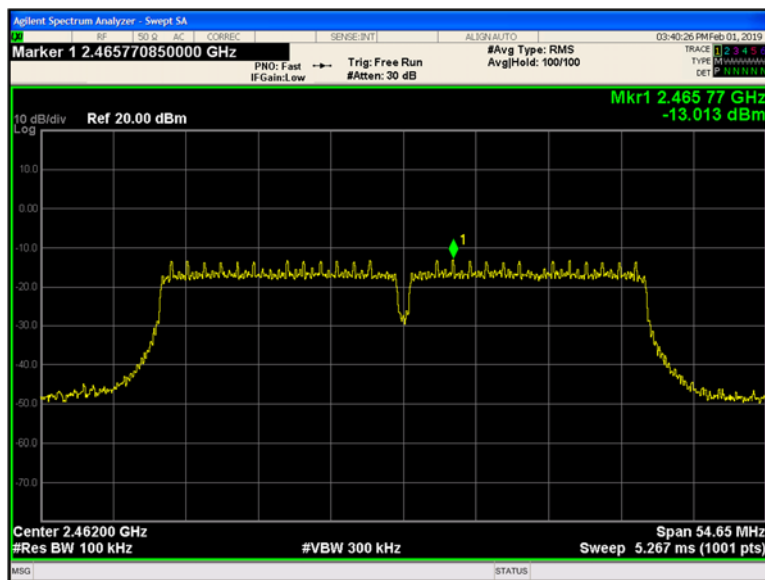
Plot 9-125 Chain B Peak Power Spectral Density 802.11n40 - Ch.7 (2442 MHz)



Plot 9-126 Chain B Peak Power Spectral Density 802.11n40 - Ch.9 (2452 MHz)



Plot 9-127 Chain B Peak Power Spectral Density 802.11n40 - Ch.10 (2457 MHz)



Plot 9-128 Chain B Peak Power Spectral Density 802.11n40 - Ch.11 (2462 MHz)



## 9.6 Conducted Spurious Emissions

### 9.6.1 Test Requirement:

FCC CFR 47 Rule Part 15.247 (d)  
ISED RSS-247 [5.5]

### 9.6.2 Test Method:

Measurements were performed according to the procedure defined in KDB 558074 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 V05 and ANSI C63.10: 2013.

#### **Spectrum Analyzer settings:**

##### ***Identification of Reference Level:***

RBW= 100 kHz  
VBW  $\geq 3 \times$  RBW  
Trace Mode= Peak Detector (Max Hold)  
Sweep time= auto couple  
Span  $\geq 1.5$  times DTS Bandwidth  
Peak Marker function to determine the max PSD level.

##### ***Conducted Spurious Emissions:***

RBW= 1 MHz  
VBW  $\geq 3 \times$  RBW = 3 MHz  
Trace Mode= Peak Detector (Max Hold)  
Sweep time= auto couple

Span= 30 MHz- 12 GHz; 12 GHz – 25 GHz  
Sweep Points= 30000

### 9.6.3 Limits:

All spurious emissions at least 20 dBc.

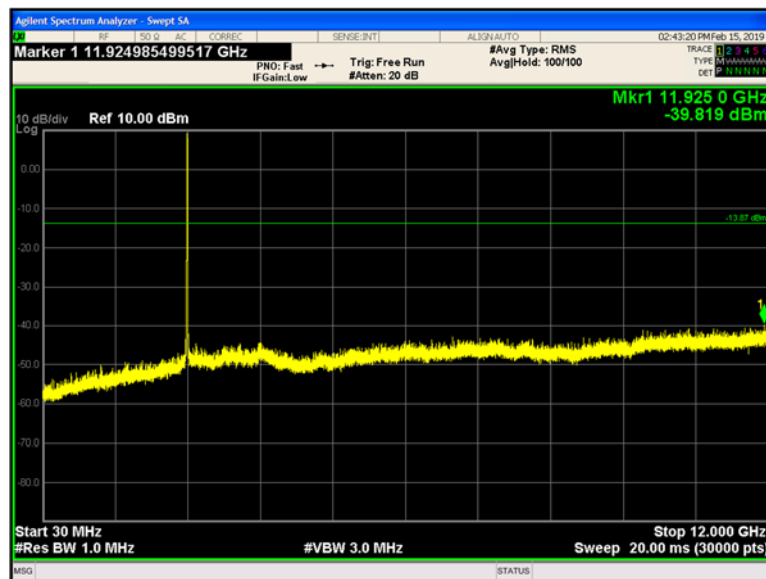
### 9.6.4 Test Result:

Pass.

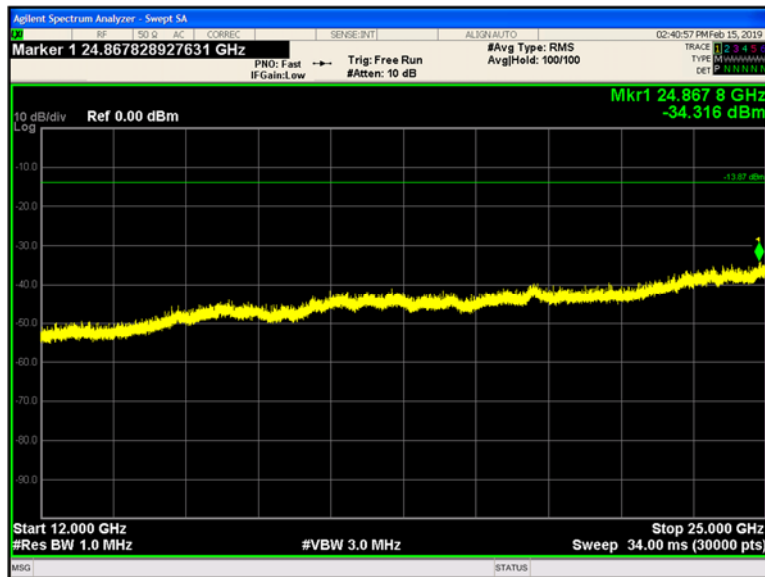
### 9.6.5 Test Data:



Plot 9-129 Chain A Reference Level 802.11b - Ch.1 (2412 MHz)



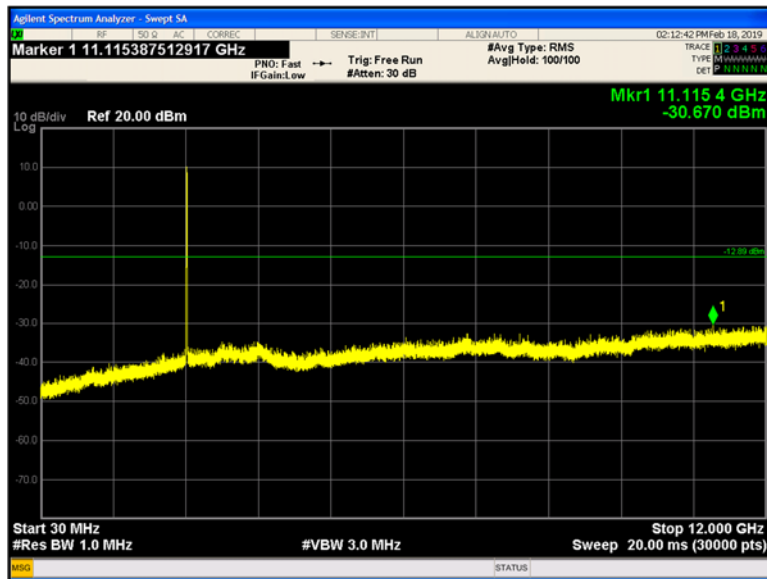
Plot 9-130 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11b - Ch.1 (2412 MHz)



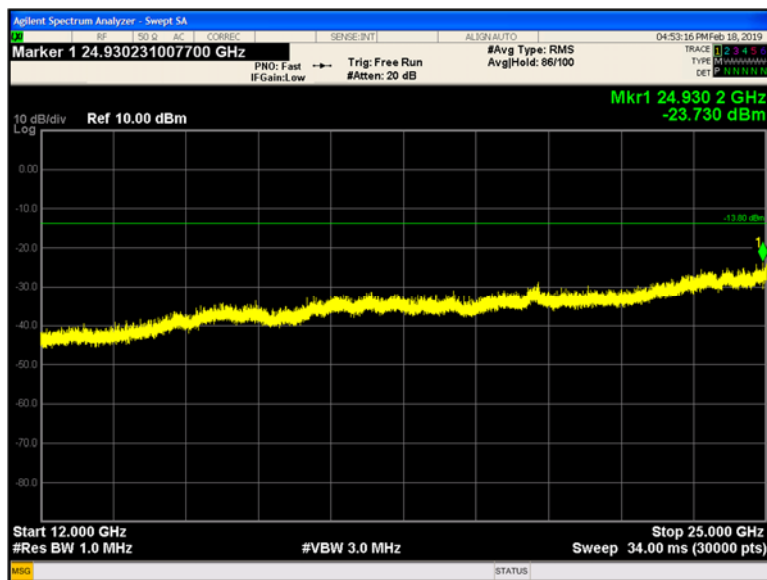
Plot 9-131 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11b - Ch.1 (2412 MHz)



Plot 9-132 Chain A Reference Level 802.11b - Ch.6 (2437 MHz)



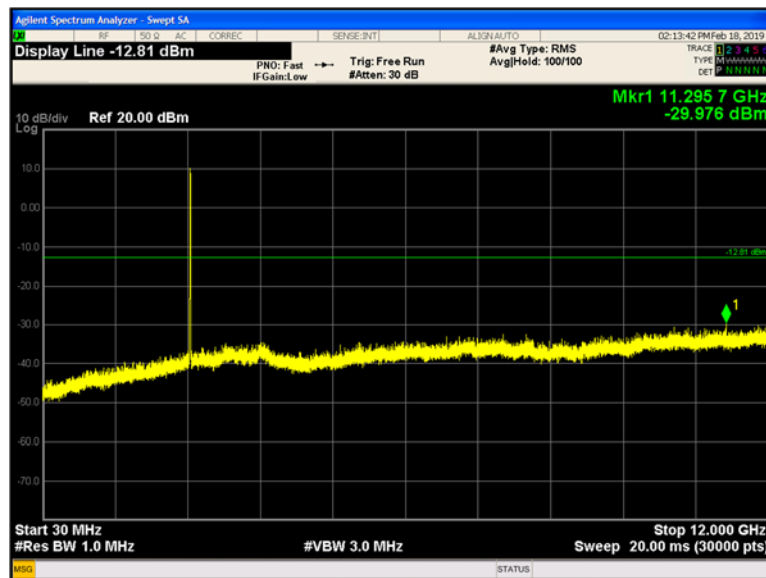
Plot 9-133 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11b - Ch.6 (2437 MHz)



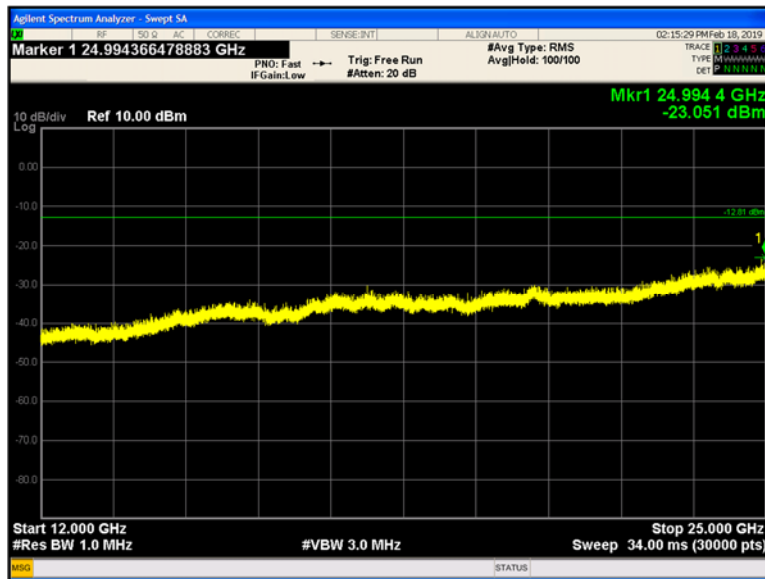
Plot 9-134 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11b - Ch.6 (2437 MHz)



Plot 9-135 Chain A Reference Level 802.11b - Ch.11 (2462 MHz)



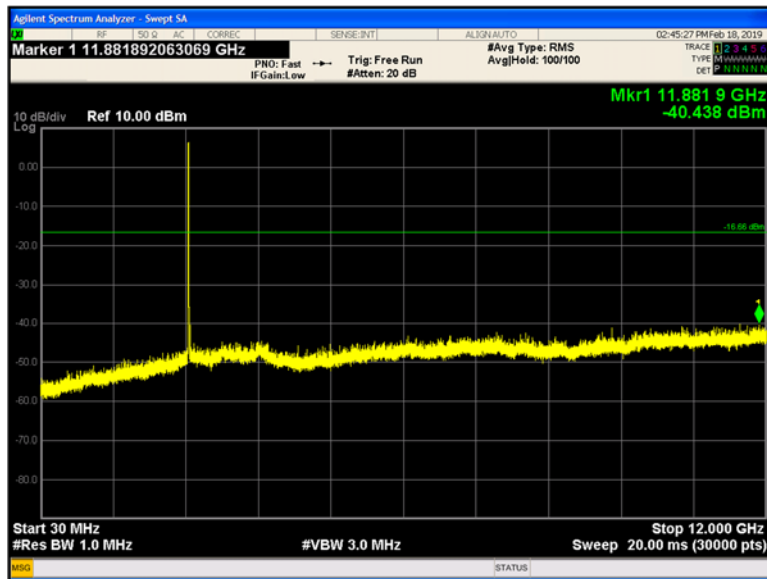
Plot 9-136 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11b - Ch.11 (2462 MHz)



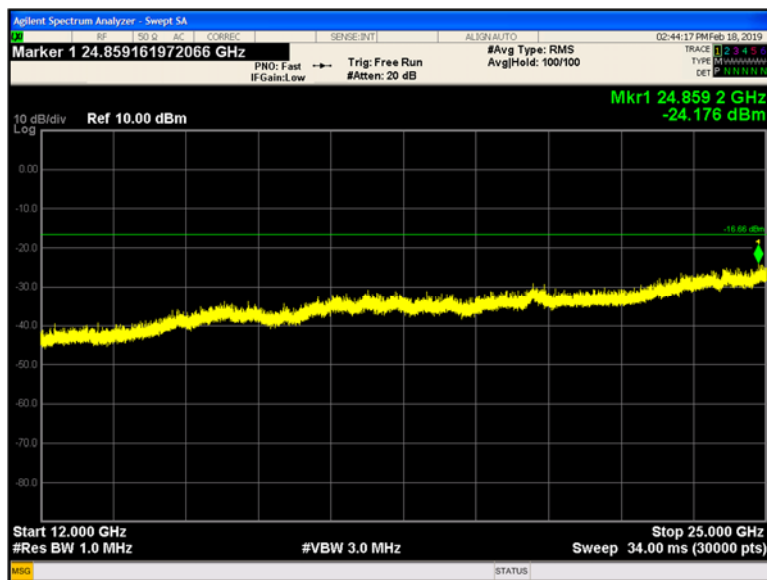
Plot 9-137 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11b - Ch.11 (2462 MHz)



Plot 9-138 Chain A Reference Level 802.11b - Ch.12 (2467 MHz)



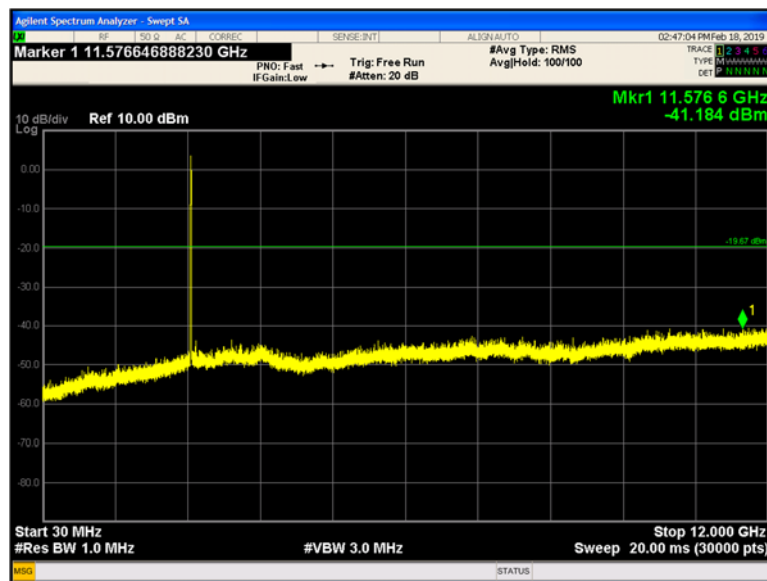
Plot 9-139 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11b - Ch.12 (2467 MHz)



Plot 9-140 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11b - Ch.12 (2467 MHz)

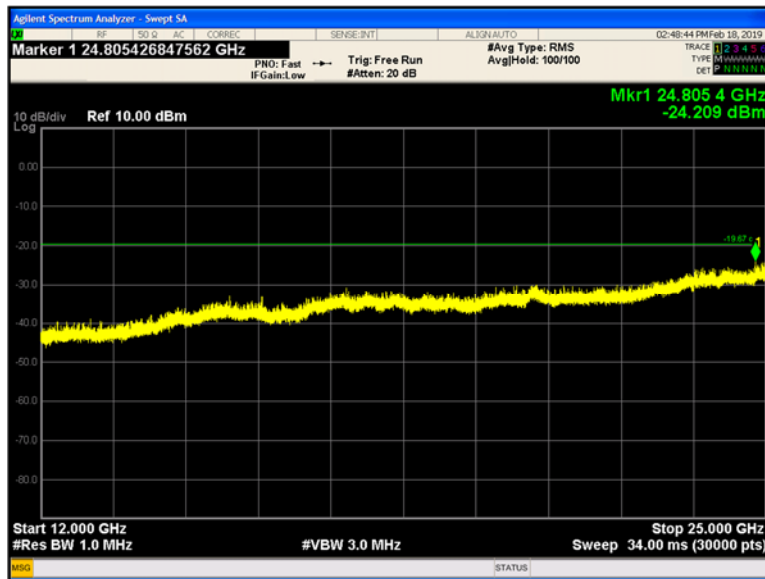


Plot 9-141 Chain A Reference Level 802.11b - Ch.13 (2472 MHz)



Plot 9-142 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11b - Ch.13 (2472 MHz)

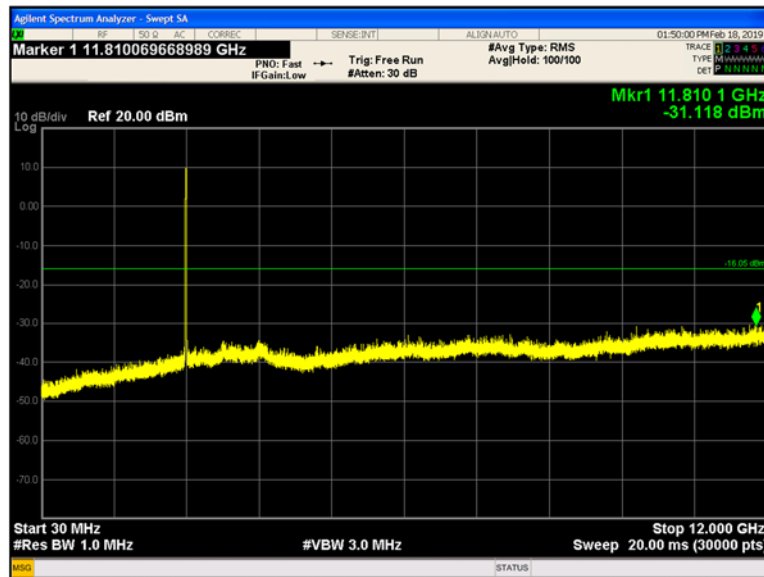




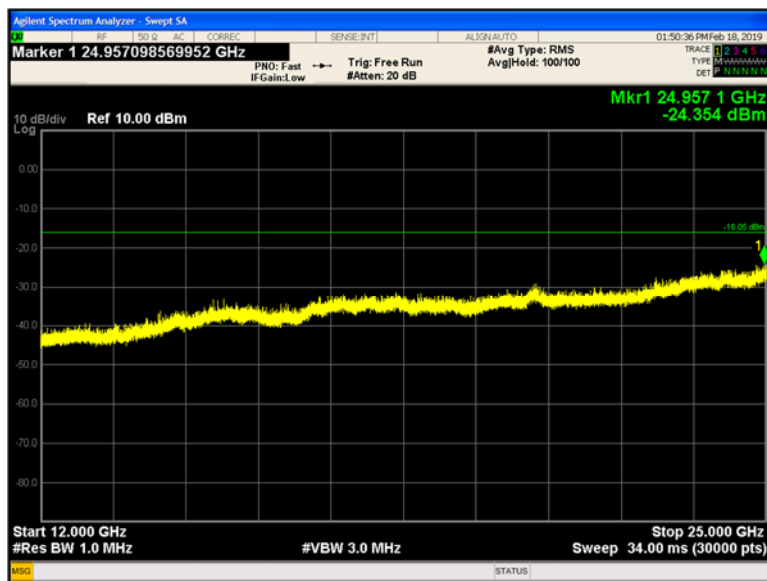
Plot 9-143 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11b - Ch.13 (2472 MHz)



Plot 9-144 Chain A Reference Level 802.11g - Ch.1 (2412 MHz)



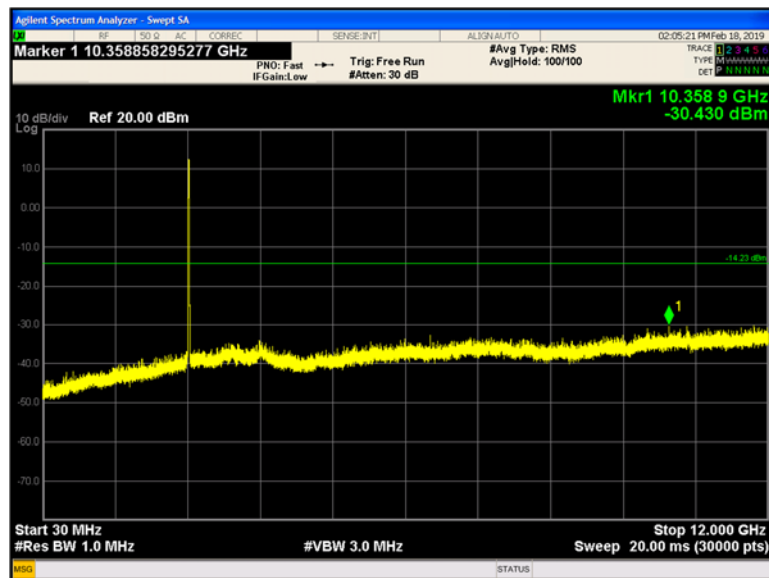
Plot 9-145 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11g - Ch.1 (2412 MHz)



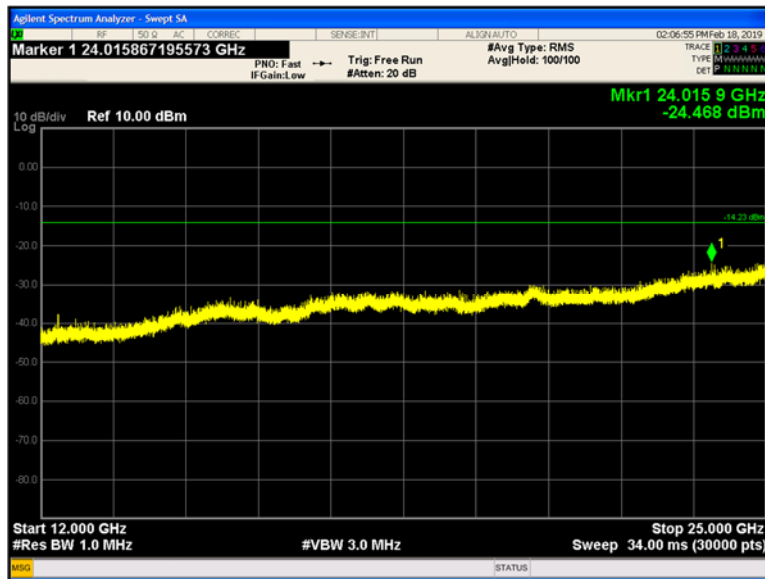
Plot 9-146 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11g - Ch.1 (2412 MHz)



Plot 9-147 Chain A Reference Level 802.11g - Ch.6 (2437 MHz)



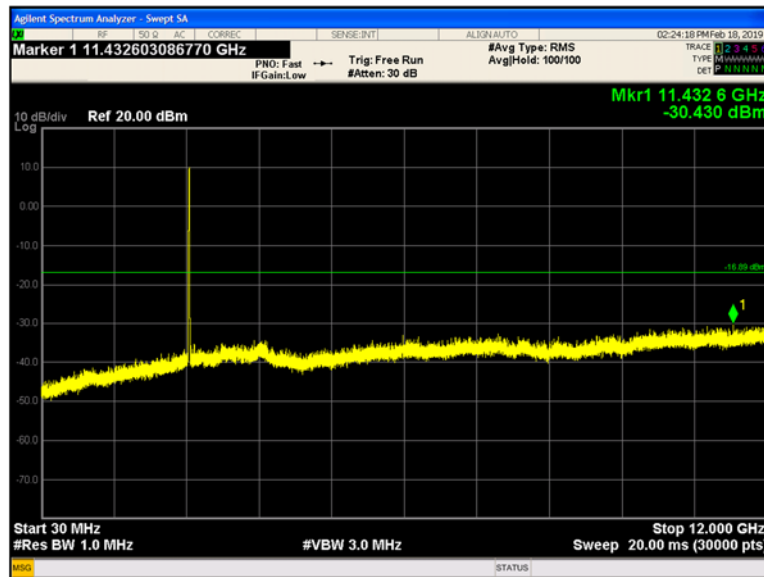
Plot 9-148 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11g - Ch.6 (2437 MHz)



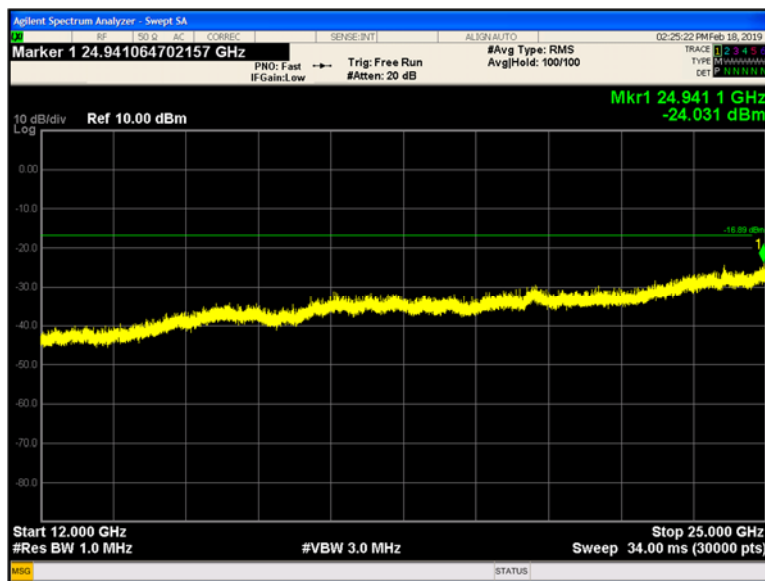
Plot 9-149 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11g - Ch.6 (2437 MHz)



Plot 9-150 Chain A Reference Level 802.11g - Ch.11 (2462 MHz)



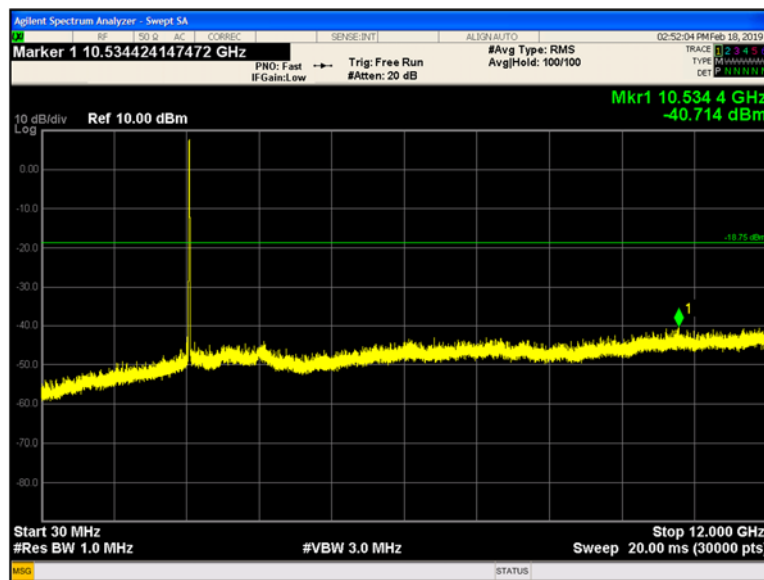
Plot 9-151 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11g - Ch.11 (2462 MHz)



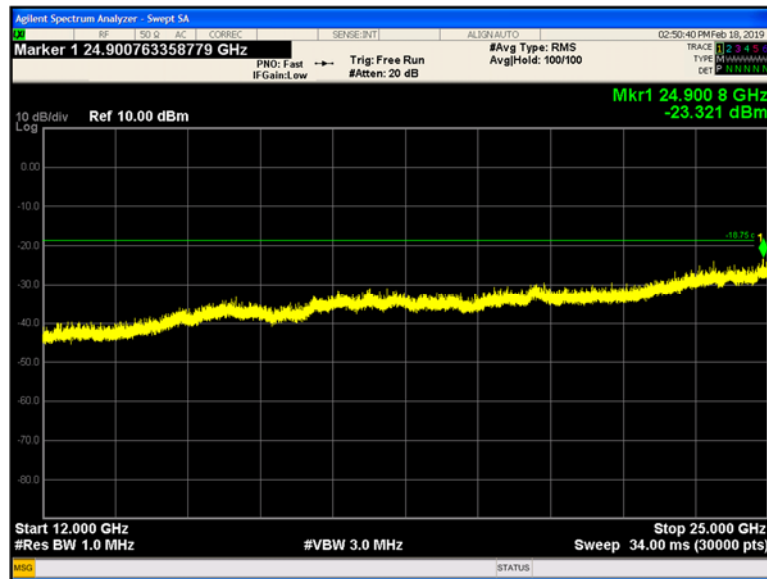
Plot 9-152 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11g - Ch.11 (2462 MHz)



Plot 9-153 Chain A Reference Level 802.11g - Ch.12 (2467 MHz)



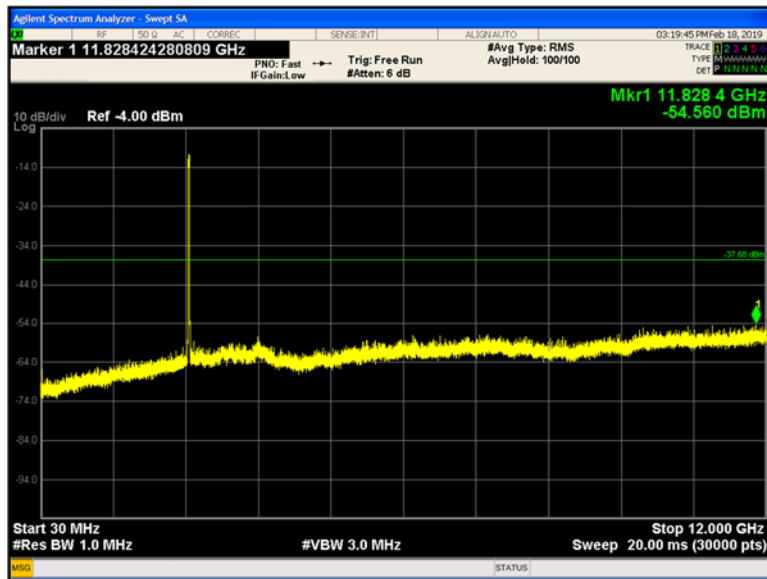
Plot 9-154 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11g - Ch.12 (2467 MHz)



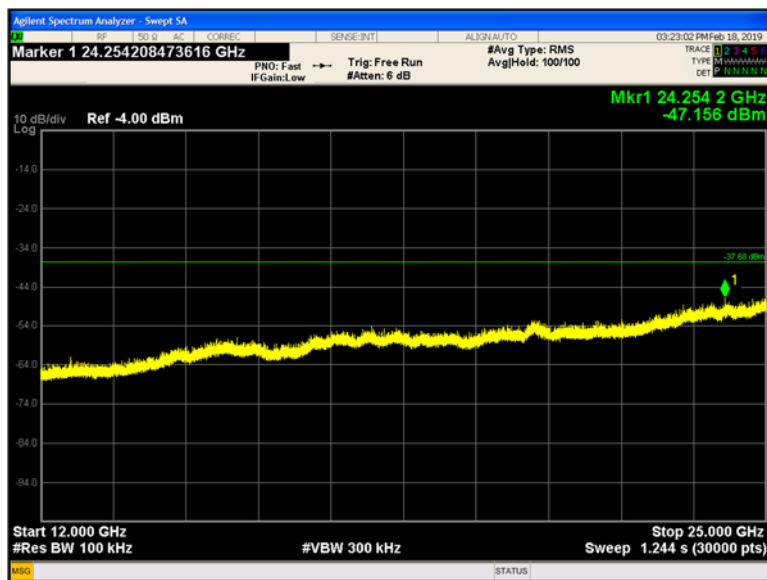
Plot 9-155 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11g - Ch.12 (2467 MHz)



Plot 9-156 Chain A Reference Level 802.11g - Ch.13 (2472 MHz)

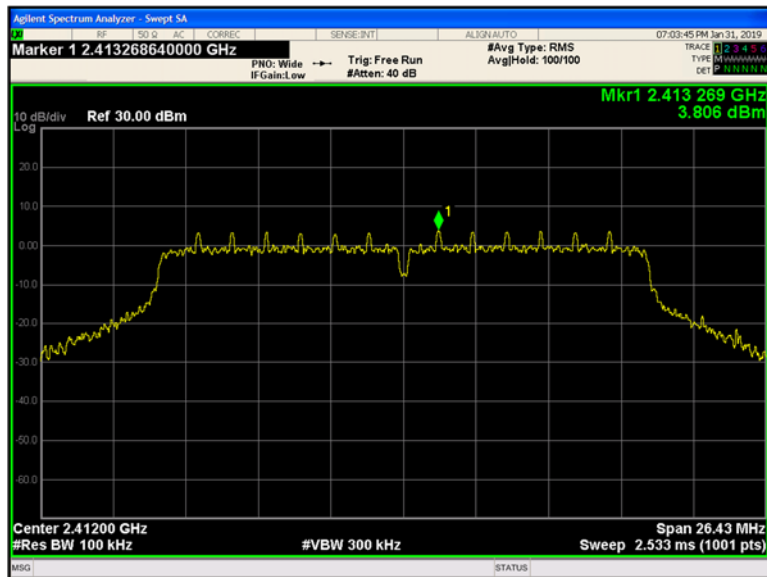


Plot 9-157 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11g - Ch.13 (2472 MHz)

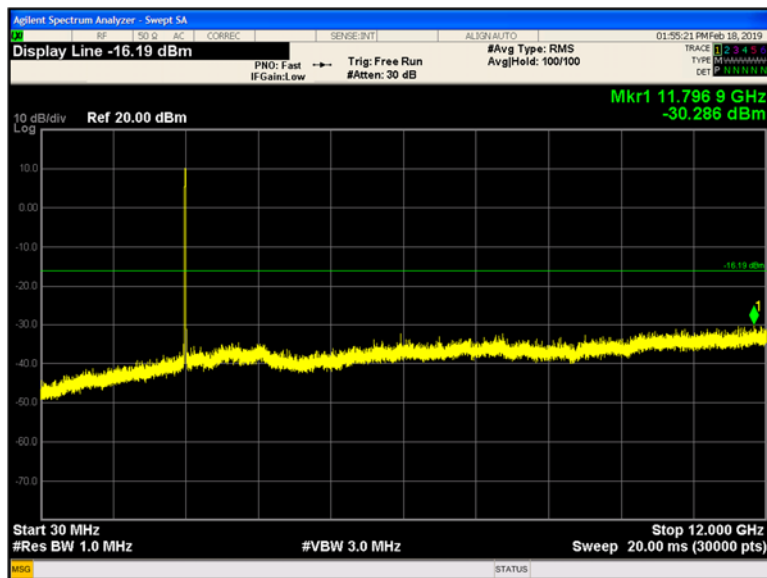


Plot 9-158 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11g - Ch.13 (2472 MHz)

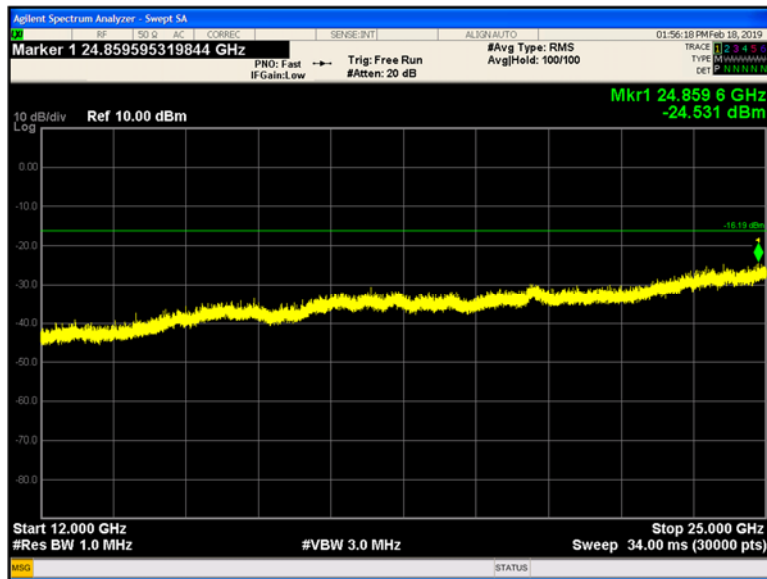




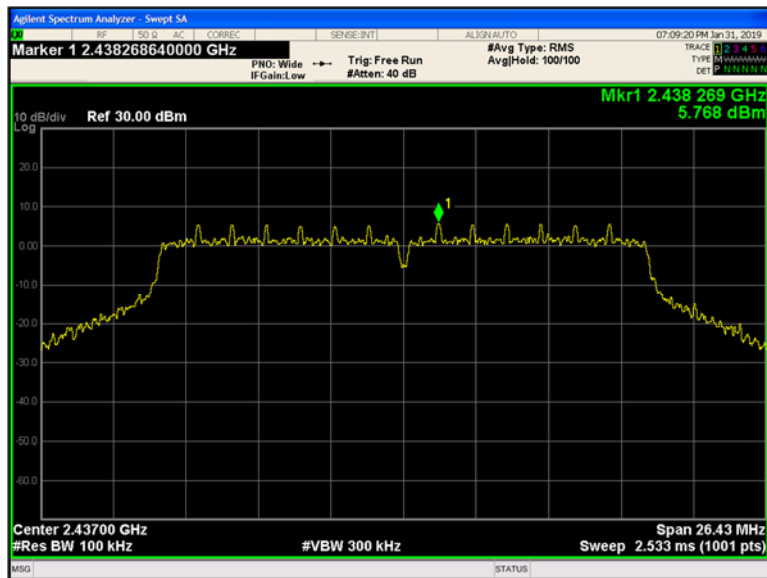
Plot 9-159 Chain A Reference Level 802.11n - Ch.1 (2412 MHz)



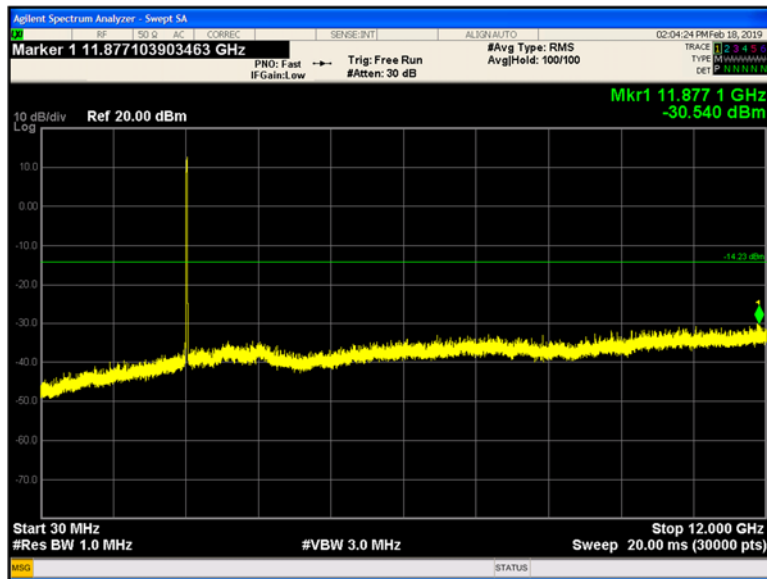
Plot 9-160 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11n - Ch.1 (2412 MHz)



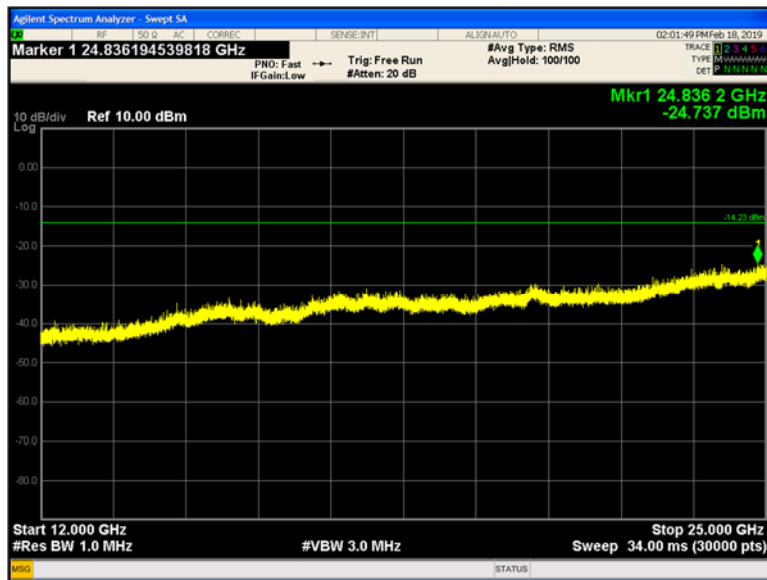
Plot 9-161 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11n - Ch.1 (2412 MHz)



Plot 9-162 Chain A Reference Level 802.11n - Ch.6 (2437 MHz)



Plot 9-163 Chain A Conducted Spurious Emissions 30 MHz - 12 GHz 802.11n - Ch.6 (2437 MHz)



Plot 9-164 Chain A Conducted Spurious Emissions 12 - 25 GHz 802.11n - Ch.6 (2437 MHz)